WE CLAIM:

1. A method of performing optical analysis on a composition, comprising:

positioning the composition at an examination site in a multi-mode instrument;

detecting light transmitted from the composition using the multi-mode instrument in a first optical measurement mode;

detecting light transmitted from the composition using the multi-mode instrument in a second optical measurement mode, where the second mode is different than the first mode; and

computing a first quantity related to a property of the composition using the light detected in at least one of the optical measurement modes.

2. The method of claim 1, where the multi-mode instrument is capable of detecting light in at least two optical measurement modes selected from the group consisting of absorption, luminescence, and scattering.

3. The method of claim 1, where the steps of detecting light using the first and second optical modes are performed sequentially.

4. The method of claim 3, further comprising automatically switching the multi-mode instrument from the first optical measurement mode to the second optical measurement mode.

5. The method of claim 1, where the steps of detecting light using the first and second optical modes are performed simultaneously.

6. The method of claim 1, where one or both of the steps of detecting light using the first and second modes are performed simultaneously on a plurality of compositions for optical analysis of the plurality of compositions.

7. The method of claim 1, where one or both of the steps of detecting light using the first and second modes are performed successively on a plurality of compositions for optical analysis of the plurality of compositions.

8. The method of claim 1, where the step of detecting light using the first mode is performed successively on a plurality of compositions for optical analysis of the plurality of compositions, and then the step of detecting light using the second mode is performed on some or all of the plurality of compositions.

9. The method of claim 1, the first quantity being computed using the light detected in the first optical measurement mode, further comprising:

computing a second quantity using the light detected in the second optical measurement mode; and

assessing the presence or effects of a potential source of error on the first quantity using the second quantity.

10. The method of claim 9, where the first optical measurement mode is luminescence, and where the second optical measurement mode is selected from the group consisting of absorption and scattering.

11. The method of claim 1, where the first optical measurement mode is luminescence.

12. The method of claim 11, where the second optical measurement mode is scattering.

13. The method of claim 12, further comprising assessing the presence or effects of turbidity on the first quantity using the light detected in the second optical measurement mode.

14. The method of claim 11, where the second optical measurement mode is absorption.

15. The method of claim 14, further comprising assessing the presence or effects of color quenching and/or a contaminant on the first quantity using the light detected in the second optical measurement mode.

16. The method of claim 1, where the first quantity is selected from the group consisting of absorbance, chemiluminescence intensity, photoluminescence intensity, photoluminescence energy transfer, photoluminescence lifetime, and photoluminescence polarization.

17. The method of claim 1, where the property of the composition is the presence or activity of a component of the composition.

18. The method of claim 1, further comprising detecting light transmitted from the composition using the multi-mode instrument in a third optical measurement mode, where the third mode is different than the first and second modes.

19. The method of claim 1, further comprising determining to perform the step of detecting light using the second mode based on an outcome of the step of detecting light using the first mode.

20. The method of claim 1, further comprising repeating the step of detecting light using the first mode based on an outcome of the step of detecting light using the second mode.

21. A method of performing optical analysis on a composition, comprising:

positioning the composition at an examination site in a multi-mode instrument;

detecting light transmitted from the composition using the multi-mode instrument in a first optical measurement mode;

computing a first quantity related to a property of the composition using the light detected in the first optical measurement mode;

comparing the quantity to a preselectable criterion; and

if the quantity matches the preselectable criterion, detecting light transmitted from the composition using the multi-mode instrument in a second optical measurement mode, where the second mode is different than the first mode.

22. The method of claim 21, where the preselectable criterion is a set of acceptable values for the first quantity, so that light transmitted from the composition is detected using the second mode if the first quantity is an acceptable value.

23. The method of claim 21, where the preselectable criterion is a set of unacceptable values for the first quantity, so that light transmitted from the composition is detected using the second mode if the first quantity is an unacceptable value.

24. The method of claim 21, further comprising:

computing a second quantity related to a property of the composition using the light detected in the second optical measurement mode; and

assessing the presence or effects of a potential source of error on the first quantity using the second quantity.

25. A system for performing optical analysis on a composition, comprising:

a multi-mode instrument that is capable of detecting light from a composition in first and second optical measurement modes, where the first mode is different than the second mode; and

a processor that uses measurements from more than one optical measurement mode to compute a quantity relating to a characteristic of the composition.

26. The system of claim 25, where the multi-mode instrument includes a light source, a detector, an examination site, and an optical relay structure positioned to transmit light from the light source to a composition at the examination site, and from the composition to the detector.